Look into the Light!

The timing of daylight exposure is critical for adjusting the body's clock. The "Light Exposure Schedule" tables below can provide guidance to help speed adjustment to new time zones before departure or upon arrival. In the first column, identify the number of time zones you'll cross. Then use "Daylight Exposure" & "Daylight Avoidance" to time your light exposure schedule. For the most part, high levels of light (>2500 lux) are required to shift the body clock – get outdoors during the "exposure" times; stay inside or wear dark sunglasses during the "avoidance" times.

Light Exposure Schedule – Eastward Travel

Time Zones Crossed		Daylight Exposure		Daylight Avoidance	
		Home	Destination	Home	Destination
4	Day 1 - 2	0300 - 0700	0700 - 1100	2000 - 0300	0000-0700
	Day 3		0700 – SS[1]		
6	Day 1 - 3	0300 - 0700	0900 - 1300	2000 - 0300	0200 - 0900
			0700 - SS		
8	Day 1 - 3	0300 - 0700	1100 - 1500	2000 - 0300	0400 - 1100
			0700 - SS		
10	Day 1 - 3	0300 - 0700	1300 - 1700	2000 - 0300	0600 - 1300
	Day 4		0700 - SS		

Light Exposure Schedule – Westward Travel

Time Zones Crossed		Daylight Exposure		Daylight Avoidance	
		Home	Destination	Home	Destination
4	Day 1 - 3	2000 - 0300	1600 - 2300	0300 - 0700	2300 - 0300
	Day 4	1100 – SSDT[2]	0700 - SS		
6	Day 1 - 3	2000 - 0300	1400 - 2100	0300 - 0700	2100 - 0100
	Day 4		0700 - SS		
8	Day 1 - 3	2000 - 0300	1200 - 1900	0300 - 0700	1900 - 2300
	Day 4		0700 - SS		
10	Day 1 - 3	2000 - 0300	1000 - 1700	0300 - 0700	1700 - 2100
	Day 4		0700 - SS		

NOTE 1 & 2: SS = sunset and SSDT = sunset destination time

The realities of TDY and/or PCS moves may create challenges in following these schedules exactly, but try your best! It will be worth the effort.

Why Bother?

Jet leg creates fatigue, decreased alertness, lethargy, difficulty concentrating, and daytime sleepiness. It affects your judgment, performance, and decision-making abilities. These effects can range from a "minor inconvenience" to a "major threat."

✈ By planning ahead, tweaking these guidelines to suit your individual situation, and sticking to the plan, you can minimize these effects.

✈ Everyone can use an edge – try it…you'll like it!

For more information on "Strategies For Coping With Jet Lag" or help in developing a deployment-specific sleep-wake roadmap, please contact your:

HUMAN PERFORMANCE TRAINING TEAM *(HPTT)*

52 AMDS/SGPT

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The 52 FW HPTT is a resource and tool for the 52 FW to address the "human system" in operations; it provides strategies for maximizing war fighter performance, minimizing mishaps, and enhancing mission accomplishment. These strategies can be provided through education, training, and consultation opportunities during commanders' calls, continuation training, safety training, and organizational reviews.

Primary sources for information in this pamphlet:

- **AFRL Warfighter Fatigue Countermeasures website (http://www.brooks.af.mil/AFRL/WFC/index.htm)**
- **Warfighter Fatigue Management During Continuous Flight Operations, AMC Guide for Flight Surgeons & Physiologists**
- **The Twenty-Four Hour Society, Dr. Moore-Ede (1993)**
- **The Promise of Sleep, Dr. Dement (1999)**

Jet Lag Strategies

(Last Updated Oct 02)

Strategies for Coping With

Jet Lag

It's 0230 and you're still awake. There are exactly 73 ceiling tiles in your room. You know because you've counted them seven times trying to fall asleep!

Many of us have faced similar problems after traveling across multiple time zones. While the strategies outlined in this pamphlet won't completely solve this dilemma, they should help you adapt as quickly as possible.

What's Happening To Me?

Traveling across multiple time zones creates a mismatch between the body's internal clock and the environment. While transoceanic travel is relatively quick, our body clock is slow to adjust. The body's clock relies on bright light and other "zeitgebers" (like sleep, meals, and social activities) to maintain a 24-hour sleep-wake cycle. When these time cues (especially light cycles) are out of synch with our normal routine, the body begins to adjust…but it takes time.

How Much Time?

Adaptation depends on several factors, but a general rule is that your body clock changes at a rate of 40 minutes/day when traveling east and 60 minutes/day when traveling west. Most adaptation occurs in the first few days, but complete adjustment can take a week or more. You can help or hurt yourself with the choices you make and the effort you invest in preparing for "time travel."

Rules of Engagement

☞ This pamphlet applies to TDYs lasting 5 or more days and/or PCS moves. ☜

ADVISORY 1 – If you plan to be away from home for less than three days, try to stay on your home time. Keep your watch set at home time; sleep and eat when you normally would at home.

ADVISORY 2 – If crossing 12 or more time zones (e.g. traveling between Europe and the Far East), follow the strategies for the OPPOSITE direction of your travel – for "Europe to the Far East", use the guidelines for westward travel; for "Far East to Europe", use the eastward travel methods.

Eastward Travel

✈ On day of departure, wake up as early as possible; get bright light exposure between 0300 and 0700. Upon boarding airplane, set watch to destination time zone. Only sleep on the plane during destination time period of 2200 – 0600.

✈ If you land during the daytime, resist the temptation to nap or sleep – stay up for the rest of the day.

✈ For the first three days at your destination, time your sunlight exposure using the "Light Exposure Schedule" tables. For example: 6-hour time zone change – get outdoors during 0900 to 1300 local time, but avoid sunlight from 0200 to 0900 local.

✈ From day 4 on, get outdoors upon waking and get as much sunlight during the day as possible.

✈ Serious sleepiness will occur during morning hours, particularly for the first few days – be aware your alertness and performance will be low.

✈ Eat light breakfasts emphasizing protein with a caffeinated beverage; normal sized lunches with protein and veggies, again with some caffeine; and a high carbo dinner with milk, potatoes, pasta, or turkey. Snack periodically during the daytime, particularly in the morning and early afternoon. Avoid caffeine and chocolate at least 4 hours prior to intended sleep time.

✈ Make sleeping conditions as conducive to sleep as possible – cool, dark, quiet, and comfortable. For a six to eight hour time change, 0200 to 0500 local time will be the hardest hours to maintain sleep. If you wake up during that time, get out of bed and do something that will make you sleepy – reading, watching a boring TV show, etc., and then try to go back to sleep.

✈ Keep your exercise regime going and match your normal workout times to local time.

Westward Travel

✈ On travel day, set your watch to destination time zone after boarding the plane; only sleep on the plane during your destination time period of 2300 – 0600.

✈ Follow the guidelines in the "Light Exposure Schedule" tables. For example, you would follow these rules for a 6-hour time zone change:

- If you arrive during the daytime, after checking into your lodging, get outside and do some light activity (walking, swimming, etc).
- If you arrive in the evening, force yourself to stay up until 2300.
- For the first 3 days, get outdoors during the hours of 1400 to 2100 (destination time). Restrict bright light exposure from 2100 to 0100.
- On day 4, daylight exposure should begin upon waking (0700) and last throughout the day.
- Serious sleepiness will occur in late afternoon and early evening – this is the time to be active outside (if possible). Resist the temptation to take a nap (stay away from meetings). Try to go to sleep at your normal time (e.g. 2200-2300).

✈ Make sleeping conditions conducive to sleep – cool, dark, quiet and comfortable. Eat a sleep-inducing light dinner about an hour and a half to two hours before scheduled bedtime. Examples include pasta, turkey, potatoes, and milk – no spicy or greasy foods. Avoid chocolate and caffeine at least 4 hours prior to bedtime.

✈ For breakfast, emphasize protein; for lunch, protein and veggies – avoid pasta, potatoes, turkey, and milk.

✈ Drink a caffeinated beverage during lunch.

Travel Tips

✈ Wear layers of comfortable clothing.

✈ Pack a personal "in-flight bag" with items to increase your comfort and/or make sleeping easier – examples include a sleep mask, earplugs, lip balm, neck pillow, and a water bottle.

✈ During periods matching destination day time, occasionally get out of your seat, take some deep breaths, stretch and move around as much as space permits. Wake-up mentally by engaging in activities that require concentration – converse, read, play a game.

✈ Bring snacks (some high-protein – like cheese, nuts; some high-carbo – like raisins, energy bars).

✈ Drink lots of fluids during the flight; water is best. The atmosphere inside the plane is very dry.

✈ Avoid alcohol – it can affect your sleep and contributes to dehydration.

✈ If you wear contact lenses, consider removing them while in flight – the dry air inside the plane can irritate your eyes and make sleep difficult.